

GEORGIA INSTITUTE OF TECHNOLOGY

ENGINEERING EXPERIMENT STATION

ATLANTA, GEORGIA 30332

August 9, 1966

Office of Grants and Research Contracts
National Aeronautics and Space Administration
Washington, D. C. 20546

Subject: Research Grant No. NsG-571
Semiannual Status Report for the Period
February 1, 1966 to July 31, 1966
(Georgia Tech Project No. B-910)

Reference: Code S.C. Contract No. 11-002-008 (031)

Gentlemen:

The following represents a summary of the project status during the subject report period.

1. The Status:

The official approval of the extension of time for the continuation of subject grant through December 31, 1966, without additional cost, has been received.

2. Progress During the Reporting Period:

(a) A paper entitled, "Axisymmetric Vibration of Hemispherical Shells," was presented at the Third Southeastern Conference on Theoretical and Applied Mechanics, March 31 to April 1, 1966. The paper is in process of publication in the proceedings.

(b) A report entitled, "The Axisymmetric Response of Cylindrical and Hemispherical Shells to Time-Dependent Loading," was submitted to your office in June, 1966.

(c) An investigation is being made for the transient response of hemispherical shells by using a mode-acceleration method. In general, the series solutions obtained for simpler structural elements according to this method converge faster than the solution obtained by use of a mode-displacement method. The results will be compared with the solutions obtained in the paper mentioned under item (a). A report concerning this part of the study will be submitted to your office.

(d) Longitudinal vibration of a cylindrical shell with an elastic hemispherical bottom has been formulated.

(e) Additional efforts have been made for the investigation of the vibration of a paraboloidal shell of revolution.

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3. Plans for Next Reporting Period:

(a) Numerical examples for the transient response of hemispherical shells by using the mode-acceleration method will be worked.

(b) Numerical examples for the longitudinal vibration of a cylindrical shell with an elastic hemispherical bottom will be worked.

(c) The investigation for the vibration of a paraboloidal shell of revolution will be continued.

(d) Investigation of the response of complete cylindrical shells and cylindrical shell segments with various boundary conditions and subjected to other types of loading will be attempted.